

**Notice of Allowability**

Application No.

09/784,234

Examiner

Sikyin Ip

Applicant(s)

NAGANO ET AL.

Art Unit

1742

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 02/13/04;03/08/04.
2. ☒ The allowed claim(s) is/are 60-64 and 66-72.
3. ☒ The drawings filed on 14 February 2001 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date 02/13/04
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413),  
Paper No./Mail Date 03/08/04.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

**SIKYIN IP  
PRIMARY EXAMINER**

### Examiner's Amendment

Authorization for this Examiner's Amendment was given in a telephone interview with Dr. Jennifer J. Taylor on March 8, 2004.

An Examiner's Amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 C.F.R. § 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the Issue Fee.

This listing of claims below replaces all prior versions and listings of claims in the application:

60. (Currently amended) A physical vapor deposition target made of a copper alloy consisting ~~essentially of~~ ~~[[an alloy of]]~~ copper and one or more other elements, the one or more other elements being present in the alloy at a total concentration from less than 1.0 at% to 0.001 at% and being selected from the group consisting of Sr, Ba, and Se.

61. (Previously presented) The physical vapor deposition target of claim 60 wherein the one or more other elements are present in the alloy at a total concentration at from 0.005 at% to 0.1 at%.

62. (Previously presented) The physical vapor deposition target of claim 60 comprising an RF sputtering coil.

63. (Previously presented) The physical vapor deposition target of claim 60 wherein the element comprises Sr.

64. (Previously presented) The physical vapor deposition target of claim 60 wherein the element comprises Ba.

65. (Cancelled)

66. (Previously presented) The physical vapor deposition target of claim 60 wherein the element comprises Se.

67. (Currently amended) The physical vapor deposition target of claim 60 wherein the one or more other elements ~~[[are within]]~~ form intermetallic compound precipitates in the alloy microstructure.

68. (Previously presented) The physical vapor deposition target of claim 60 wherein the average grain size is less than or equal to about 20 micrometers.

69. (Currently amended) A physical vapor deposition target made of a copper alloy consisting ~~essentially of a copper alloy, the alloy consisting~~ of copper having a purity of 99.9998% ~~[ [alloyed with] ]~~ and a total concentration of other elements of from less than 1.0 at% to 0.001 at%, the other elements being selected from the group consisting of Sr, Ba, Sc, and Se, at least one of Sr, Ba and Se being present.

70. (Previously presented) The physical vapor deposition target of claim 69 wherein the copper alloy comprises an average grain size and comprises an electromigration resistance higher than the electromigration resistance of copper having a purity of greater than 99.999% of the same average grain size.

71. (Previously presented) The physical vapor deposition target of claim 69 wherein the copper alloy comprises an average grain size and comprises a thermal stability to grain size retention that is higher than the thermal stability to grain size retention of copper having a purity of greater than 99.999% of the same average grain size.

72. (Previously presented) The physical vapor deposition target of claim 69 comprising three or fewer of the other elements.

The following is an Examiner's Statement of Reasons for Allowance: The instant transitional expression "consisting of" has excluded the additional essential elements from references of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the Issue Fee and, to avoid processing delays, should preferably

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accompany the Issue Fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."


## Examiner Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to S. Ip whose telephone number is (571) 272-1241. The examiner can normally be reached on Monday to Friday from 5:30 A.M. to 2:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Roy V. King, can be reached on (571)-272-1244.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
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S. Ip  
March 8, 2004